

### ABSTRACT

Spectral measurement devices and methods able to provide EEMs and other spectral measurements. The devices rapidly and specifically illuminate a sample and detect resulting light emanating from the sample. Such devices can use acousto-optic tunable filters (AOTFs) to selectively illuminate the sample with illumination light substantially only in a desired illumination wavelength(s). This provides high detection sensitivity, large measurement dynamic range and scans of the full 400-1000 nm light range (or more) at rates as fast as about 1 second, or even as fast as video rates. In another aspect, methods and systems relating to the analysis of autofluorescence emanating from melanin under long wavelength visible light (VIS) and near infrared (NIR) excitation.